April 7, 2003

SPECIAL PROVISION

PROJECT #

SECTION 02610M

PIPE CULVERTS

Add the following to Part 1:

1.4 ACCEPTANCE CRITERIA

A. Pipe culverts accepted according to the criteria outlined in this section. The Engineer may require testing of any or all culverts for compliance with the criteria. The Engineer reviews and approves proposed corrections. The acceptance of pipe culvert is based on five requirements: 1) Horizontal and vertical alignment deviations; 2) Barrel distortions; 3) Damages to the pipe; 4) Joint fitting; 5) Coating integrity. Following is a description of the requirements:

1. **Horizontal and vertical alignment deviations**
   Measure horizontal and vertical installation deviations from the culvert's final construction survey stakes. Do not exceed the tolerances shown on Table A of this section.
2. **Barrel distortions**
   Measure load distortions along a straight line through the centerline of the pipe. Do not exceed the tolerances shown on Table A of this section.
3. **Damaged culverts**
   Remove or repair pipe culverts that are irregular or distorted, have cracks, dents, holes, splits, or loose nuts or bolts. Remove all pipes with a damaged invert.
4. **Joints**
   Remove all pipe culverts that have damaged joints that allow the culvert to leak. Re-install or remove all pipes that do not connect properly. Connect joints according to manufacturers recommendations. Provide a manufacturer Certificate of Compliance for the pipe joints.
5. **Coating integrity**
   Repair all pipe coatings, according to manufacturer recommendations, that don't have the required thickness or that have been damaged. Provide a Manufacturer Certificate of compliance for the pipe coating.

Table - A TOLERANCES

Alignment Tolerances			Distortions Gradual Ovaling or Elliptical	
Design Grade	**Max. Line Deviation**	**Max. Grade Deviation**	**Nominal Pipe Diameter ***	**Maximum Distortions ****
	Percent of Nominal Pipe Diameter	inch/100feet	inch	Inch
> 1 %	5	1 1/2	18	+/- 0 - 7/8
			24	+/- 1 - 1/4
≤ 1 %	5	1	30	+/- 1 - 1/2
			36	+/- 1 - 7/8
< 0.5 %		± 0.5	42	+/- 2
			48 +/-	+/- 2 - 3/8

Notes For nominal culvert diameters larger than 48 inch, use measured diameter to calculate 5 percent allowable distortion. *
Maximum distortions are used to define dimensions associated with allowable pipe deflections. Measure directly or by use of a mandrel test. **